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# THE JOURNAL OF PHILOSOPHY

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## THE IDENTITY OF INSTINCT AND HABIT

TWO years ago, in a brief paper entitled *Are There Any Instincts?*<sup>1</sup> I questioned the usefulness of the conception of instincts then prevalent in psychology, pointing out that while there are many reaction patterns which may legitimately be called instinctive—if by instinctive we mean *unlearned*—these reaction patterns are not combined in the so-called instincts in any exclusive way, but that the same reaction pattern occurs in several of the instincts, and that in some of the instincts practically all of the reaction patterns, learned and unlearned, which the animal possesses, function at one time or another. The “instincts,” I concluded, are teleological groupings of activities, not psychological groupings. They are teleological, in that they are grouped with reference to the ends attained by the complex activity: not ends that the acting animal holds as conscious purposes, but ends that the classifier (the psychologist, biologist, philosopher, or whoever draws up the list of instincts), considers as attained by the activity in question. Lists of instincts, therefore, represent no fundamental psychological processes, but merely the convenience of the classifier: and any list which is convenient is as valid as any other list.

Since this heretical assault upon a widely held doctrine was delivered, a considerable number of writers have taken up the cudgel against instincts; and there seems to be danger that denunciation of instinct will become as fashionable and as uncritical as the acceptance of instincts has been hitherto. In particular, there seems to be a tendency to make no discrimination between instinctive activity, instinct, and instincts; but to assume that rejecting the last of these disposes of the others. It may well be that there is such a thing as instinct, namely, action determined solely by the environment (stimulation pattern), and the constitution of the animal; and that hence certain actions are properly called instinctive (without regard to what they accomplish in the world, of course); although the “instincts” are purely arbitrary groupings of activities. A recent author,<sup>2</sup> in fact, while rejecting the whole conception of instinct, reinstates instinctive activities under the changed names of inherited

<sup>1</sup> *Journal of Abnormal Psychology*, 1919, Vol. 14, pp. 307–311.

<sup>2</sup> Zing Yang Kuo, “Giving up Instincts in Psychology,” this JOURNAL, 1921, Vol. 18, pp. 645–664.

"action-systems," defining these in precisely the same way in which we would ordinarily define instinctive tendencies.

It seems to me, therefore, necessary to state a little more carefully the objections to the old use of "instincts" in psychology, and also to add the consideration of certain objections to the antithesis usually assumed between instinct and habit, especially since these latter objections have not been raised by any of the recent authors to whom I refer. In my present view concerning this relation of instinct and habit, I am in part indebted to Dr. Ulrich,<sup>3</sup> although I must confess that the suggestion comes to me not from his important monograph, but from personal discussion with him of matters contained therein. I hope I may be pardoned if I repeat somewhat, and if I seem to introduce rather elementary illustrations, for I now feel that it is better to be a little tedious rather than run the risk of not making my point understood.

Psychologists have got into the habit of contrasting instinct and intelligence. From that they have gone on to the custom of speaking of specific instincts as if they were really separable entities;<sup>4</sup> a habit that was wished upon psychologists by a variety of men: philosophers, students of animal behavior, etc. The machinery of instincts so constructed has been seized on by several psychologists as ready-made apparatus for the construction of social psychology, and it behooves us to look rather carefully, if necessarily somewhat hastily, into the whole question of instincts, which, of course, we have to separate from instinct and from instinctive reaction.

We find in the animal, human and infra-human, tendencies to react in certain ways to certain stimuli: tendencies to make certain definite responses to certain definite features of the environment. For example: At a certain time the bell rings, whereupon the students in my room gather up their books and file out through the door. There is thus demonstrated a tendency to react in a particular way, however complex, to a particular stimulus pattern, which in this case happens to be a relatively simple one. The reaction, of course, was not in existence during the time immediately preceding the ringing of the bell. The students, however, did have the tendency. It may not have been in existence during the whole of the hour preceding the action, but certainly a number of minutes before the bell rang the tendency was there, ready to play its part in bringing about the action. A tendency, we may assume, is a certain arrangement in the nervous system; what Stout and others have

<sup>3</sup> "Integration of Movement in Learning in the Albino Rat," *Psychobiology*, 1920, Vol. 2, pp. 375-448, 455-500; *Journal of Comparative Psychology*, 1921, Vol. 1, pp. 1-96, 155-199, 221-286.

<sup>4</sup> The separation of intelligence into different intelligences has not been so easily accepted, although that separation has been proposed.

called a *disposition* of the nervous system: something which is definitely in existence, whether we describe it as a physical or chemical arrangement. It is because of this arrangement in the nervous system that the stimulus produces the response. That the "disposition" exists as an organic fact, is further proved by the fact that the reaction, in a case such as we have described, may be predicted.

As an illustration of the relation of "disposition," or "tendency," to response, we may consider an electric door bell and its operation. We press the button and the bell rings; because there was a mechanical arrangement of parts, an existing "disposition" of the sort that made the response (the transmission of the current and the ringing of the bell) possible when the stimulus (the pressing of the button) was applied. We mean by the "tendency" of an animal to react in a certain way to a certain stimulus, nothing more occult than the "tendency" of the bell to ring when the button is pressed.

In the human animal some of these tendencies are tendencies to perceptual reactions. If a certain canvas with certain paint smears on it is presented to one man, he perceives a genuine Tintoretto; while another person to whom is presented the same canvas perceives only a dreary daub. Why? The two men have different perceptual tendencies. There is a tendency on the part of one man to react to that stimulus in one way; and the other man has a tendency to react in another way.

Men have also divergent emotional tendencies. One man, while watching a certain scene on the stage, has an emotional result which we might describe as "interest, with mild pleasure"; another man reacts with a sad emotion, akin to grief. This difference can be stated as due to a difference in tendencies which have previously been established, so that the same stimulus pattern produces the responses in accordance with the different tendencies.

There are also thought-tendencies, as definite as the perceptual and emotional tendencies. If I mention Plymouth Rock to a group of people, some of them may think of chicken-runs, incubators, broilers, and market reports, while others may think of a stern and rock-bound coast, where the breaking waves dash high; depending on the particular tendency existing in the individual who is stimulated.

It is customary to divide or group these tendencies under two headings. We class them as instinctive, native, or inherited on the one hand, and habitual, learned, or acquired on the other. It is further customary to use the term "instinct" in a general way to indicate the existence in any animal of native reaction tendencies, "habit" in a corresponding way to indicate the existence of acquired

tendencies, and "intelligence" to mean the capacity to acquire or to modify reaction tendencies. With these methods of speech we have no quarrel, and may accept the terms as defined.

But there is a further custom of speaking of certain groups of instinctive tendencies as *instincts*. This usage is by no means a necessary consequence of those just described. We might use the term instinct in a general way, and speak in particular of instinctive reactions, and yet not speak of "an instinct" or "instincts" at all. The conception of instincts has been constructed, however, and various lists of "instincts" have been compiled, and we have come in a rather naïve way to speak of this or that "instinct" as if they were separable entities: either groups of reactions, or tendencies toward certain complex reactions. We speak of the "nesting instinct" of the bird, the "instinct of flight," the "parental instinct," etc., through various lists, these lists ranging all the way from those including but two instincts: the self-preservatory and the reproductive or race-preservative; through the list of four which Trotter considers adequate; to McDougall's list of twelve, and the list of Thorndike, which includes an indefinite number between ten and twenty.

The enumeration of such lists does not necessarily involve the distinction of "instincts" from simpler tendencies; but in the hands of all those who have constructed "fundamental" lists, such a distinction, as a matter of fact, is involved. Practically all of the compilers of lists have refused to admit to the group of "instincts" the simple reflex, such as the knee jerk, and many more complicated native reactions, such as the sucking of the child.

Criteria are therefore devised in order to distinguish instincts from other non-acquired tendencies. Most of the classifiers object to defining an instinct as a mere group of reflexes. McDougall assumes that consciousness is involved; that there are essential conscious elements in an instinct; and does not accept as an instinct an unconscious reaction, however definite. In a partial way, McDougall makes emotional accompaniment a criterion. In a certain number of the twelve instincts, at least, primary emotions are assumed to be involved. The instinct of flight involves the emotion of fear; repulsion involves disgust; curiosity, wonder; pugnacity, anger; self-abasement, subjection; self-assertion, elation; the parental instinct, tender emotion.

It is not my intention to discuss the various criteria of instinct; I merely mention these as illustrating the way in which psychologists have taken the term "instincts" in the plural, as contrasted with "instinctive reaction," which has not the same meaning.

From a purely physiological point of view, there are no instincts.

There are groups of re-activities (including not merely the end result, muscular and glandular activities, but the whole process in the nervous system and effectors), into which the minor groups enter in varying conditions. In the activities of flight, food-getting, and fighting, as they actually occur, when the "tendency" passes over into action, the same running movements may be present. To a large extent the running movement in getting away from some object which is inimical to the animal, the running movements in going after food of an elusive type, the running movements in pursuing an enemy, may be practically the same. In general, the same minor complex may enter now into this, now into that complex which is called an instinct, or the eventuation of an instinct. Some so-called instincts are at times entirely included in other instincts. For instance, flight, pugnacity, and food getting, taken just as groups of reactivities, may each occur as part of the parental instinct, since the parental instinct involves not merely the begetting of children, but also the procuring of food for them, and the fighting in their defense, and even the running away with a child at times, if danger is too threatening. We would have, then, from a physiological point of view, the instinct of flight and the instinct of pugnacity as parts of the total complex which would be called the parental instinct. It seems to me, moreover, that practically all of our activities enter at some time or other into the so-called reproductive instinct; and there are perhaps instances where the relation is reversed: where instinct *A* at one time includes instinct *B*, and at another time instinct *B* includes instinct *A*.

This inclusiveness and overlapping nature of the so-called instincts is not the point of greatest difficulty in classification. The really obstructive difficulty lies in the indefinite shading of one instinct into another. For example, between flight and pugnacity, even when it is not a question of their being included in some other instinct, the lines are by no means sharp; for between the two there is a continuous gradation of intermediate instincts.

If we attempt to distinguish instincts by the accompanying emotions, we again find difficulty. Fear, for example, appears sometimes as self-abasement, and shades by gradations into wonder. Moreover, fear is involved in a number of the instincts: the parental, the gregarious, and sometimes in the acquisitive. So also the subjective emotion and the emotion of elation are both found at times in the reproductive and parental instincts, and in the pugnacious instinct. I should say, moreover, that there are indefinite shadings of emotions between fear and disgust. The withdrawal from a situation may not involve fear alone or mere disgust, but may be marked by something between the two. So also there seems to be indefinite

shadings between fear and wonder, and fear and anger. It might be said that these shadings are mixtures; that we have in one case a mixture of fear and anger, and in another case a mixture of fear and wonder. That may be true. But we have no clearly marked "elemental" fear, or "pure" anger. Fear itself seems to be a complex which varies widely, and seems to contain elements which are also contained in anger and various other emotions, and at the present time it is safest to regard each of these so-called "primary" emotions as a complex of several elements, some of which are common to several emotions; and to regard the particular emotion present at any time as dependent upon the relative strength of the components. Excitement, for instance, is sometimes present in fear and usually in anger. Again, most of these "primary" emotions, such as fear or anger, are apparently of several kinds. The fear you have when you start running immediately does not *seem* of the same sort as the fear you have when you are struck immobile, and it is a question worth considering whether these *are* the same fear. To me, retrospection shows that they are not the same. Again, flight might occur without fear, or at least without the kind of fear which is usually associated with flight. I have found myself running, after a motor car has honked beside me on a street crossing, and yet have not found the inner content which I call fear. The emotion in such cases I should call "startle" or "being startled"; but not "fear."

I think the assumption that there is a very simple or constant thing to be called fear, another to be called anger, and so on, is certainly a dangerous one. If there are such constant things, the evidence so far does not demonstrate it. I can not see at the present time any great hope for the evolution of a list of "instincts" on the basis of the emotions.

If we should now attempt to distinguish reaction-tendencies on the basis of desire, or the purpose of the reacting animal (not the purpose of the classifiers), we might be on a better foundation. I think, myself, there is a distinct possibility there, and have been working on this line for several years. I should say, however, that in this we are getting away from the instinct basis altogether: that the classification of activities in accordance with their furtherance of desires is a very different problem from that in which McDougall, Watson, and Trotter have been interested. Such a system of distinction would depend, not on a primary classification of activity groups, but on a working out of the total activities of the organism now in this way, and now in that, from a strictly psychological point of view.

The actual basis of all the suggested lists of instincts is in the purposes of the *classifier*, not in the purpose of the *reacting animal*. All the unlearned activities of the animal which the classifier views

as contributing to the obtaining of food are considered by him as the "feeding instinct." All of those which, from the point of view of the classifier, culminate in the perpetuation of the species, are considered the "reproductive instinct." Any end or purpose which the classifier considers as important enough to set over against other ends is the point of departure for the erection of "an instinct." This is the teleological method, not the psychological. Now, from such a point of view, the classifier may erect as many instincts as will accomplish his own purposes. There is no reason for objecting to a "mathematical instinct," unless you do so on the ground of universality. There are results in the world which involve getting together the mathematical relationship of things, and the tendency to work towards these results is native to some people, if not to all. The "musical instinct," the "religious instinct," and many others, are also widely distributed. There certainly is such a thing as religion and activities which produce certain results which are designated as religious, and if we judge by history and by contemporary events, tendencies toward these sorts of activities are universal, and have a native basis in the constitution of human organisms. There is also a tendency in the human animal to construct a political system.

The popular writers who construct any instincts they please are quite in accord with the general system of instinct classification. In using the term "an instinct," you must conceive of a definite and describable type of result which may be attained by activities of various sorts, and assume that some of these activities are unlearned. Any system of classification which is adequate for your purpose is quite valid. A list of instincts is a good deal like a filing system: you may file all your documents under the letter of the alphabet with which the name of the writer begins, or you may file by subjects, or by dates. One system is useful in one business, another is more useful in another business. But an industry can not be founded on a filing system; neither can a system of social psychology be founded on a classification of instincts.

But after all, this difficulty with instincts is only a minor one. While I am glad to see that many persons interested in social psychology are beginning to doubt the usefulness of specific instincts as bases for work, I think there is a still graver difficulty in the whole question of instinct and instinctive reactions, a difficulty which rather seriously concerns not only the foundations of certain types of social psychology, but also some of our conceptions of education and eugenics.

We have been so far assuming that there is a fundamental difference, in human and other animals, between instinctive and acquired



reactions. Instinctive reactions we have tentatively supposed to be native tendencies to respond to stimuli in specific ways; and acquired reactions are supposed to be those tendencies which are derived from previous reactions and innate dispositions together. Starting with a tendency to some definite reaction to a definite stimulus, various other reactions modify this tendency and eventually an acquired tendency, distinguishably different from the original tendency, arises.

This conception of the two classes of reactions, easily accepted in the past, is indeed questionable. In the life of the higher animal, there are seldom, if ever, simple reactions to simple stimuli. The actual occurrences are complex stimulus patterns and complex reactions. We find some reactions, such as the knee-jerk, in which both stimulus and reaction are relatively simple; and some, such as the infant's sucking reaction, in which the stimulus seems simple, although the reaction is complex. But in the main, the actual adjustments of the organism to its environment are complex in both respects, and even the sucking reaction involves more of a stimulus pattern than we ordinarily suppose.

The stimulus pattern of an instinctive reaction, as such reactions are usually conceived, is assumed to be a purely spatial one: that is, not temporal also. In such a reaction, only the stimuli of the movement are effective. In the instinctive flying of a bird, assuming such to occur, the visual, tactual, kinesthetic, and perhaps auditory stimuli of the moment are assumed to be effective: the stimuli of preceding minutes, hours, and days, and the reactions evoked thereby, are assumed to be negligible. If these preceding stimuli and reactions do contribute to, or modify, the reaction, then the reaction is in so far not instinctive, but learned.

The characteristic of the learned reaction is just the temporal stimulus pattern. In playing billiards, for example, the movements of the arm and body are the results not of the stimulus of the moment alone, but are the results of a stimulus pattern which extends over a long period of time, perhaps months or years.

But both of these reactions, the acquired reaction and the so-called instinctive one, are equally "native." Suppose that a child is given a small piece of sandpaper at an early age, and that he puts that in his mouth, and subsequently cries. If the piece of sandpaper is given him repeatedly, the child eventually will react in a quite different way. Instead of grabbing the sandpaper, he will turn his head away and cry, and go through other reactions which express his intention of not putting the sandpaper in his mouth. The sandpaper in this case is the stimulus. At the first presentation, when the child put it in his mouth, we have a so-called instinctive reaction. At the last presentation, when he does not put it in his mouth but

does something else, we have a so-called acquired reaction. At the first time, it is assumed by current theory, the child's nervous system was so disposed that that particular stimulus, regardless of other stimuli preceding it, caused that particular reaction; and at the last time the child's nervous system was so constituted by heredity and the results of repeated stimulation, that the same stimulation at that particular time produced a different reaction. In the one case, there is a spatial, in the other a temporal, pattern. But after all, are not the two cases of the same kind, and equally "instinctive"? Is the difference between a temporal pattern and a spatial pattern great enough to be made so important, even if we should admit the possibility of a purely temporal pattern? The general statement of the reaction tendency in the two cases is much the same. If it is true that the child's organism, at the first trial, is so constituted by heredity that the first stimulation produces the first reaction (putting the sandpaper in the mouth), is it not equally true that his organism is at that moment so constituted that another stimulus (the repeated presentation of the sandpaper) will produce another reaction (avoiding the sandpaper)? Are not both reactions equally "instinctive"? Is not the reaction to a temporal stimulus pattern just as "native" as the reaction to a stimulus pattern merely spatially conditioned?

But, the reader may say, admitting that all reactions are equally "instinctive," both are not equally "acquired." Admitting that the second reaction is as fully native as the first, is there not something more in the second, or in the condition of the second? Even this we may very seriously deny. After all, there is no such thing as a "merely spatial" pattern: all patterns are temporal, and all reactions equally "acquired."

Let us consider such a complex reaction system as the nest-building of the robin. How could this occur without preceding stimuli and reactions involved in the processes of feeding, flying, *etc.*? Suppose the bird had not gone through this preceding reaction series. Can we assume that his nervous system could have developed to the point where the nest-building tendency would appear? We can not. In other words, a temporal pattern extending far back of the beginning of the nest-building, is involved; and our basis for distinguishing between this sort of reaction and habit completely disappears.

Suppose we consider some of the less complex reactions: the sucking reaction of the child, for example. Suppose the child had not first been stimulated by cold air, and pressure, in such a way as to produce the crying reaction: could the sucking reaction have been evoked later? Here, again, we can not get away from the effects

of preceding stimuli. In this case it might be said that we are not dealing with a specific effect on the nervous system in the way of modification, but with the preservation of the integrity of the nervous system. But this is a distinction without a valid difference. We are concerned with a condition in the nervous system which makes a certain specific reaction possible, and any other stimuli which are essential to putting the nervous system in such condition, or to maintaining it in such condition, through the reaction evoked, must be considered as a part of the stimulus pattern. Our knowledge of the nervous system does not permit us to go beyond this point.

At the present time, I can see no way of distinguishing usefully between instinct and habit. All reactions are definite responses to definite stimulus patterns, and the exact character of the response is determined in every case by the inherited constitution of the organism *and* the stimulus pattern. All reactions are instinctive: all are acquired. If we consider instinct, we find it to be the form and method of habit-formation: if we consider habit, we find it to be the way in which instinct exhibits itself. Practically, we use the term *instinctive reaction* to designate any reaction whose antecedents we do not care, at the time, to inquire into; by *acquired reaction*, on the other hand, we mean those reactions for whose antecedents we intend to give some account. But let us beware of founding a psychology, social, general, or individual, on such a distinction.

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### MUST WE GIVE UP INSTINCTS IN PSYCHOLOGY?

IN a recent number of this JOURNAL (Vol. XVIII, No. 24) there appeared an article entitled "Giving Up Instincts in Psychology" by Mr. Zing Yang Kuo, of the University of California, in which the writer argued not only that instincts have been overworked as explanatory concepts in psychology, but that, as a matter of fact, there are no such things as instincts in human nature. This point of view and many of the considerations urged in behalf of it are interesting and stimulating. There are several points, however, at which the writer's argument appears to me to be loose and open to attack. For example, emphasis is laid on the fact that "there is no general agreement among the students of instincts as to the number and kinds of instincts." That there is such a lack of general agreement among students of instincts no one would deny. But this does not imply the non-existence of instincts; it merely reflects the lack of scientific accuracy and completeness in this field of investigation.